



Intel[®] System Configuration Utility

User Guide

This *User Guide* serves as a reference document providing instruction on the use of Intel's *System Configuration (SYSCFG) Utility*.

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1 Introduction

The *Intel® System Configuration Utility (SYSCFG)* is a command-line utility that can be used to display and/or set a variety of system BIOS and management firmware settings. In addition, the utility can be used to save system settings to or restore them from a file.

This User Guide serves as a reference document describing the utility's features and provides instructions on the use of all supported commands.

Features and commands described in this document apply to the following *Intel® System Configuration Utility (SYSCFG)* revisions:

14.0

The *Intel® System Configuration Utility (SYSCFG)* is only supported on the following Intel Server products:

- Intel® Server Board based on Intel® Xeon® processor E5-1600/2600/4600 v2 product family
- Intel® Server Board based on Intel® Xeon® processor E5-2400 v2 product family
- Intel® Server Board based on Intel® Xeon® processor E5-2600 v3/v4 product family
- Intel® Server Board based on Intel® Xeon® processor E3-1200 v2/v3/v4 product family
- Intel® Server Board based on Intel® Xeon® processor E3-1200 v5 product family
- Intel® Server Board based on Intel® Xeon® Phi™ product family

The *Intel® System Configuration Utility (SYSCFG)* is not intended for and should not be used on any non-Intel server products.

Note: Not all BIOS or management firmware settings can be set using this utility. Refer to the Product Guide for your server board for a complete list of BIOS settings. Refer to *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* for information on the standard management firmware settings.

1.1 Operating Systems Supported

This version of the utility supports the Operating System versions listed in the following table. Refer to the Tested Hardware and Operating System List for your server board to determine which operating systems are supported on your server board.

Table 1. Operating Systems Supported

Platforms	System Configuration Utility Version	Operating Systems / Pre-boot Environment Supported
<ul style="list-style-type: none"> • Intel® Server Board based on Intel® Xeon® processor E5-1600/2600/4600 v2 product family • Intel® Server Board based on Intel® Xeon® processor E5-2400 v2 product family • Intel® Server Board based on Intel® Xeon® processor E5-2600 v3/v4 product family • Intel® Server Board based on Intel® Xeon® processor E3-1200 v2/v3/v4 product family • Intel® Server Board based on Intel® Xeon® processor E3-1200 v5 product family • Intel® Server Board based on Intel® Xeon® Phi™ product family 	14.0	EFI Shell Windows 2016 (EM64T) Windows* Server 2012 (32bit & EM64T) Windows Server 2012 R2 (EM64T) Windows Server 2008 R2 SP1 EM64T Windows Server 2008 (32bit & EM64T) Windows Server 2003 (32 bit SP2 & EM64T SP2) Windows 7 (32 bit & EM64T) for work station SKU's RHEL*6.x and 7.x (32 bit & EM64T) CentOS* 6.x (32 bit & EM64T) SuSE* Linux 11 SP1/SP2/SP3 and 12.x (32 bit & EM64T)

Note: SYSCFG version or build may be different across different platforms. Download the supported SYSCFG utility version and build for your server from the Intel support website. Also refer to the utility release notes for all known issues with installation and usage.

1.2 Target Audience

This User Guide is intended for Original Equipment Manufacturers and those who are responsible for configuring the system BIOS and Management Firmware settings on a Intel Server system.

1.3 Reference Documents

The following documents should be referenced for additional support and usage information.

- *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* (available at support.intel.com)
- *Server Product Guides for BIOS Setup Options*
- *Intel® Server Configuration Utilities Deployment Procedure for Windows PE 2005**

1.4 Glossary of Terms

The following table lists the terminology used in this document and the description.

Table 2. Glossary of Terms

Term	Definition
ACPI	Advanced Configuration and Power Interface
ARP	Address Resolution Protocol
BMC	Baseboard management controller
CLTT	Closed-loop thermal throttling (memory throttling mode)
DHCP	Dynamic Host Configuration Protocol
FRB	Fault resilient booting
FRU	Field replaceable unit
I ² C	Inter-integrated circuit bus
IPMI	Intelligent Platform Management Interface
LAN	Local area network
MD5	Message Digest 5. A hashing algorithm that provides higher security than MD2.
ms	Millisecond
NIC	Network interface card
NMI	Non-maskable interrupt
OLTT	Open-loop thermal throttling (memory throttling mode)
PCI	Peripheral Component Interconnect
PEF	Platform event filtering
PIA	Platform information area
POST	Power-on self-test
PWM	Pulse Width Modulation. The mechanism used to control the speed of system fans.
RAM	Random Access Memory
RAS	Reliability, availability, and serviceability
ROM	Read-only memory
RTC	Real-time clock
SEL	System event log
SNMP	Simple Network Management Protocol
SOL	Serial-over-LAN

1.5 Support Information

World Wide Web

<http://support.intel.com/support/>

For an updated support contact list, see <http://www.intel.com/support/9089.htm/>.

2 Using the Intel® System Configuration (SYSCFG) Utility

SYSCFG is a command-line scriptable utility that can be used to save and restore BIOS and firmware settings to a file, or to set and display individual BIOS settings. SYSCFG may be used in a script to automate the process of configuring multiple servers. A few commands may not be supported on all platforms due to limitations in the platform firmware/BIOS. The description of each command will describe any limitations.

The general syntax is:

syscfg [{/|-]command [arguments]] [...next_command [arguments]]

Multiple commands may be specified on a single line unless otherwise noted in the Command Reference description. The maximum line length is 127 characters.

Note: This version of the utility can be run from the EFI, Linux*, Windows* command prompt, and the Windows* Pre-installation Environment. Some platforms may not support all the operating environments for this utility.

3 Quick Start Instructions

This section details the quick start instructions for supported operating systems.

3.1 Utility Installation

A. Linux*

I. Regular Installation:

- i. Boot into Linux* and unzip the SYSCFG utility zip file into a folder on your hard drive. After unzip, RHEL* or SLES* folder will be generated.

The Syscfg directory will have the following file:

- Syscfg.zip

- ii. Unzip the file to get the Syscfg binaries and execute the Syscfg commands.
- iii. To uninstall SYSCFG utility, remove the Syscfg folder structure.

II. RPM Installation:

- i. Boot into Linux and unzip the SYSCFG utility zip file into a folder on your hard drive. Copy syscfg rpm from Linux*-RPM-package (for RHEL* or SLES*) to a local folder.
- ii. If there is another version already has been installed previously, uninstall that version first before installing the new version.
- iii. Install SYSCFG utility by using `rpm -ivh syscfg-Vxx.x-Bxx.ixxx.rpm`. This will install the utility in `/usr/bin/syscfg/`.
- iv. In RHEL*/SLES* after installing the rpm, close the terminal from which rpm was installed and then execute the utility from a new terminal (for example, `# syscfg -i`).
- v. To uninstall Syscfg, execute the following command: `syscfg -e syscfg`

B. UEFI

- I. Unzip SYSCFG utility zip file to a USB pen drive. Boot into EFI and change folder to `\UEFI_64` which contains:
 - ipmi.efi
 - NShell.efi
 - syscfg.efi
- II. Run Syscfg commands from the location where the files are copied.
- III. To uninstall SYSCFG utility, delete the contents of the directory where the utility is installed.

C. Windows*/WinPE

- I. Copy the SYSCFG utility zip file into your local directory (for example, `C:\syscfg`).
- II. Unzip the zip file.
- III. The following folders contain Windows* binaries and drivers in `C:\syscfg` folder.
 - Win_x64
 - Win_x86
 - Drivers
- IV. For 32-bit or EM64T operating system, go to folder `SyscfgVxx_0_BuildXX\Drivers\win\x86` or `SyscfgVxx_0_BuildXX\Drivers\win\x64` and run `install.cmd` to install the Intel® Intelligent Management Bus Driver Vxx.x, Intel® 28F320C3 Flash Update Device Driver Vxx.x, and Intel® Intelligent Management Utility Device Vxx.x.

- V. From the command prompt go to Win_x64 or Win_x86 folder and run the desired commands for the utility.
- VI. To uninstall SYSCFG utility, do the following:
 - Delete the contents of the directory where the utility is installed.
 - Manually uninstall the drivers from the Device Manager.

3.2 Saving a Configuration

The utility utilizes a text based .INI file to save and restore BIOS and Management FW settings in both binary and text formats. Being a text based file, available BIOS and Management FW settings can be easily modified and saved using any text editing tool.

To save the BIOS and firmware configuration to a file, do the following:

1. Boot to one of the supported operating systems on the target system.
2. Change directories to the location of the Syscfg executable. (This location must be writable to allow you to save the system configuration.)
3. In Windows*, Windows Pre-installation Environment*, or EFI, type:

syscfg /s <filename>.ini

In Linux*, type:

./syscfg /s <filename>.ini

You can use this saved INI file to restore the configuration on this target server or other servers using the /r command.

3.3 Restoring a Configuration

The SYSCFG utility supports restoring BIOS and Management FW settings in both binary and text mode using a text based .INI file. In the following scenario, the .INI file does not clone servers, but instead provides a mechanism of configuring the same items with different values per your requirement.

To restore or install a system configuration from a saved .INI file, use the following procedure.

Note: For restoring un-editable fields, section name headers and key names should not be edited or deleted from the INI file.

To restore a configuration, do the following:

1. Boot the system to one of the supported operating systems.
2. Change to the directory containing the Syscfg executable. (The saved .INI configuration file should also be located in this directory.)
3. To restore the saved BIOS settings:

In Windows*, Windows Pre-installation Environment*, or EFI, type:

syscfg /r <filename>.ini /b

In Linux*, type:

./syscfg /r <filename>.ini /b

4. On Intel® Server Board Platform, the BIOS administrator password must be supplied.

a. If the BIOS administrator password is set

In Windows*, Windows Pre-installation Environment*, or EFI, type:

syscfg /r filename.ini /b /bap <BIOS administrator password>

In Linux*, type:

./syscfg /r filename.ini /b /bap <BIOS administrator password>

b. If the BIOS administrator password is not set

In Windows*, Windows Pre-installation Environment*, or EFI, type:

syscfg /r filename.ini /b

In Linux*, type:

./syscfg /r filename.ini /b

3.4 Displaying Syscfg Help

To display Syscfg help, type: ***syscfg /h***

3.5 Displaying Current BIOS and Firmware Versions

To display the current BIOS and firmware settings, type: ***syscfg /i***

4 Using Commands

This section lists the Generic commands/switches, BIOS, and Firmware commands and their tasks.

4.1 SYSCFG Commands - Quick Reference (Generic, BIOS, and Firmware)

The following table lists all the SYSCFG commands classified – as generic, BIOS, and Firmware – for your quick reference.

Table 3. SYSCFG Commands - Quick Reference

Generic Commands/ Switches	BIOS Commands	Firmware Commands			
		Channel Commands	LAN Commands	PEF Commands	User Commands
/d Display /i Information /q Quiet Mode switch /r Restore /s Save	/bap BIOS Administrator Password /bup BIOS User Password /bbosys System Boot Order /bbo System Boot Order in detail /bcs BIOS Configure Setting /bldfs BIOS Load Default Factory Settings /bvar This command creates a new UEFI variable /secureboot Set EFI Secure Boot status /securebootkey Set EFI Secure Boot key	/c Channels /csel Clear SEL /dt Date and Time /eac Email Alert Configuration /eae Email Alert Enable /h Help	/lac LAN Alert Configuration /lae LAN Alert Enable /lc LAN Configuration /le LAN Enable /lfo LAN Failover	/pefc PEF Configure /peff PEF Filter /pefp PEF Policy /prp Power Restore Policy /rbmc Reset BMC /rfs Restore firmware settings /rnm Reset Node Manager /sbmcdl Save BMC debug log /sdp Set shutdown policy	/u Users /ue User Enable /up User privilege

4.2 Generic Commands/Switches

4.2.1 Information (/i)

syscfg /i [filename.INI]

Filename	File name for a System Configuration File in the current working directory. If the filename is not specified, the command displays the BIOS and firmware versions of the current system.
----------	--

Display the BIOS and firmware versions of the system or the saved BIOS and firmware settings in a System Configuration File.

Examples:

```
syscfg /i
syscfg /i btp.ini
```


4.2.2 Quiet (/q)

syscfg options /q

Options	Any other valid option. The /q switch must be at the end of the command line.
/q	Quiet Mode. This option prevents all output from the command.

Suppress all messages.

Example:

```
syscfg /r /f /b /q
```

4.2.3 Restore (/r)

syscfg /r [filename.INI] {/f | /b | /f /b}

Filename	Filename of the syscfg configuration file in the current working directory. If no filename is specified, the default filename syscfg.ini is used based on the parameter supplied explained in the example below. The filename suffix must be .INI.
/f	Restore the firmware settings. See Appendix B for a list of the settings that are restored.
/b	Restore the BIOS settings. See Appendix B for a list of the settings that are restored.
/nobo	This option is used in conjunction with /r to skip restoring boot order.

Restore the BIOS and firmware settings from an INI file.

Examples:

```
syscfg /r /f /b (default file name is syscfg.ini)
syscfg /r saved.ini /f
syscfg /r myscfg.ini /b /bap kwqt821
```

```
syscfg /r ini /f /b (default file name is syscfg.ini)
syscfg /r ini /f /b /nobo (default file name is syscfg.ini)
syscfg /r saved.ini /f
syscfg /r myscfg.ini /b /bap kwqt128
```

Notes:

- One or both of the /r and /f options are required.
- If the BIOS Administrator password is set, you must use the /bap command to enter the password.
- The static IP Address assigned by a DHCP server, the BIOS boot order, and other dynamic BIOS settings are not saved or restored.

4.2.4 Save (/s)

syscfg /s [filename.INI] {/f | /b | /f /b}

Filename	File name to be used for the syscfg configuration file in the current working directory. If no filename is specified, the default file name syscfg.ini is used based on the parameter supplied explained in the example below. The filename suffix must be .INI; if omitted, syscfg will add the .INI suffix. The filename should consist of only alphanumeric characters.
/f	Save the firmware settings. See Appendix B for a list of the settings that are saved.
/b	Save the BIOS settings. See Appendix B for a list of the settings that are saved.

Save the BIOS and firmware settings to an INI file.

Examples:

```
syscfg /s /f /b (default file name is syscfg.ini)
syscfg /s saved.ini /f
```

```
syscfg /s ini /f /b (default file name is syscfg.ini)
syscfg /s saved.ini /b
```

Notes:

- Save/Restore process following the INI file is not a means for exact cloning between the servers; it is a means to clone a subset of BIOS/FW configurable settings and duplicate those settings in the deployed servers.
- Save and restore of Host IP, Subnet Mask, Default Gateway IP, and Backup Gateway IP is not supported on Intel® Server Board Platform .

4.2.5 Display (/d)

```
syscfg /d {CHANNEL Channel_ID | BIOS | BIOSSETTINGS {{group BIOS_Group_Name BIOS_Setting_Name
[BIOS_Setting_Name...] | [individual] BIOS_Setting_Name [BIOS_Setting_Name...] } | LAN Channel_ID
LAN_Alert_Destination_Index | POWER | PEF Filter_Table_Index [Policy_Table_Index] | SOL Channel_ID} |
USER User_ID [Channel_ID] | FWADVCFG Channel_ID [User_ID [SMTP_Configuration_Index] ] | SDP |
SECUREBOOT }
```

CHANNEL	Displays the BMC Channel configuration for the specified channel.
Channel_ID	IPMI Channel ID.
BIOS	Displays the current values of the BIOS settings that can be configured with this utility (except the Administrator and User passwords).
BIOSSETTINGS	Displays values of a subset of the BIOS settings. The arguments that follow this keyword are used to select the BIOS settings to display.
group	Selects the BIOS Settings based on the name of the group in BIOS Setup. If both group and individual keywords are omitted, the default is individual.
individual	Selects the individual BIOS Settings anywhere in BIOS Setup. If two or more settings have the same name, the first setting found in BIOS Setup is displayed.
BIOS_Group_Name	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
LAN	Displays the BMC LAN channel configuration. The operating system settings may be different.
POWER	Displays the power restore policy.
PEF	Displays the Platform Event Filters.
SOL	Displays the Serial Over LAN settings.
USER	Displays the BMC user settings.
Channel_ID	IPMI Channel ID.
LAN_Alert_Destination_Index	Enter the LAN Alert Destination Index.
Filter_Table_Index	Enter the Filter Table Index.
Policy_Table_Index	Enter the PEF Policy Table Index.
User_ID	Enter an integer between 1 and <i>n</i> , where <i>n</i> is the number of users supported by the platform for the BMC User ID. User ID 1 is the anonymous user (no password).
FWADVCFG	Displays the advanced firmware settings for the channel, users, and SMTP configuration.
Channel_ID	IPMI Channel ID.
User_ID	BMC User ID. When used with the FWADVCFG keyword, the configuration information is displayed for the user.

<i>SMTP_Configuration_Index</i>	Specifies the SMTP configuration in the firmware email alerting tables.
SDP	Display the current shutdown policy in the system.
SECUREBOOT	Display the current EFI secure boot status.

Display the specified BMC and BIOS settings.

Examples:

```
syscfg /d channel 1
syscfg /d lan 1 2
syscfg /d pef 2 1
syscfg /d BIOSSETTINGS individual "Quiet Boot"
syscfg /d BIOSSETTINGS "Set Fan Profile"
syscfg /d BIOSSETTINGS group "Main" "Quiet Boot" "POST Error Pause"
syscfg /d biossettings group "system acoustics and performance configuration" "Set throttling mode"
"Altitude" "Set fan profile"
syscfg /d FWADVCFG 3 2 1
syscfg /d sdp
syscfg /d secureboot
```

Note: The SYSCFG utility on Intel® S1200V3RP Server Board product family does not support to use /d BIOS option.

4.3 BIOS Commands

This section lists the BIOS Commands.

4.3.1 BIOS Administrator Password (/bap)

syscfg /bap {old_password | ""} [new_password | ""]

old_password	The password should be a minimum of 8 characters and maximum 14 characters in length.
new_password	The password can have characters alphanumeric (a-z, A-Z, 0-9) and the following special characters: ! @ # \$ % ^ * () - _ + = ? ' which are case insensitive. Use two double quotes ("") to represent a null password.

To set or clear the BIOS Administrator password, you must enter the old password, if set, or the null string if the Administrator password is currently not set, before entering the new password. Enter a null string for the new password to clear the password.

The Administrator password controls access to all BIOS Setup fields including the ability to clear the User password. If only one password (Administrator or User) is set, then this password is required to enter Setup. You can change any other BIOS option using Syscfg by providing the Administrator password. You may combine the /bap and /bup commands to set both the BIOS Administrator and User passwords at the same time.

Refer to the product guide for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bap "" admin@123
syscfg /bap admin@123 superuser@123
```

Notes: The Set BIOS User Password (`/bup`) option (described in the following section) can only be used if the system has a valid Administrator password set. Clearing the BIOS Administrator password will also clear the User password.

4.3.2 BIOS User Password (`/bup`)

`syscfg /bup {admin_password | ""} {old_user_password | ""} [new_user_password | ""]`

admin_password	You must enter the BIOS admin password, if set, or the null string if the password is currently not set.
old_user_password, new_user_password	The password should be a minimum of 8 characters and maximum 14 characters in length. The password can have characters alphanumeric (a-z, A-Z, 0-9) and the following special characters: ! @ # \$ % ^ * () - _ + = ? ' which are case insensitive. Use two double quotes ("") to represent a null password.

To set or clear the BIOS User password, you must enter the old password, if set, or the null string if the User password is currently not set, before entering the new password. Enter a null string for the new password to clear the password.

The User password controls access to modify the following BIOS Setup fields: time, date, language, and User password. If only one password (Administrator or User) is set, then this password is required to enter Setup. You can change the user password by providing the administrator password as explained below.

Refer to the product guide for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bup superuser@123 "" user@123
syscfg /bup superuser@123 user@123 newuser@123 ""
syscfg /bup superuser@123 newuser@123
syscfg /bup "" "" user?123 in this example the admin password is "" (not set)
```

Notes:

- The `/bup` option can only be used if system has a valid Administrator password set. Clearing the Administrator password will also clear the User password.
- User password cannot be the same as administrator password.

4.3.3 System Boot Order (`/bbosys`)

`syscfg /bbosys [device_number [device_number [...]]]`

device_number	The current ordinal number of the system boot device. (1 is the first device, 2 is the second device, etc.) To change the order, specify an order for the device numbers (for example, if you specify "2 1 4 3" then the second boot device will be the first boot device after the command is executed.
---------------	---

Refer to the product guide for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bbosys
1: PS-SONY CD-ROM CDU5221
2: 1st floppy drive
3: PM-WDC WD400BB-23FRA0
4: EFI Boot Manager
```

Examples of how to set the BIOS boot order:

```
syscfg /bbosys admin@123 2 1 3 4
```

If the BIOS administrator password is not set, use:

```
syscfg /bbosys "" 2 1 3 4
```

4.3.4 System Boot Order in detail (/bbo)

The /bbo switch will display elaborate information of all boot devices present in the system under different groups or classifications.

Display the detailed boot device information.

Examples:

```
syscfg /bbo
Number of boot devices = 7
=====
Boot Device Priority
-----
:: Local Hard Disk Boot Devices (HDD) ::
=====
1: KingstonDataTraveler 2.01.00
2: Secondary Master Hard Disk
3: JetFlashTranscend 8GB 8.07
:: CD/DVD Boot Devices (DVD) ::
=====
1: Primary Master CD-ROM
:: Network Boot Devices (NW) ::
=====
1: IBA GE Slot 0100 v1327
2: IBA GE Slot 0101 v1327
:: EFI Boot Devices (EFI) ::
=====
1: Internal EFI Shell
```

Examples of how to set the detailed system boot order:

```
syscfg /bbo "admin@123" EFI NW DVD HDD
syscfg /bbo "admin@123" NW 2 1
```

If the Administrator password is not set, use:

```
syscfg /bbo "" EFI NW DVD HDD
syscfg /bbo "" NW 2 1
```

Notes:

- Reordering boot devices using /bbo should be followed by a system reset as per IPMI spec. Otherwise an immediate display command using /bbo switch may not display the correct boot device order.
- The /bbo command cannot be cascaded.

For example, the following commands are valid:

```
syscfg /bbo HDD 3 2 1
```

```
syscfg /bbo NW 2 1
```

The following command is not valid:

```
syscfg /bbo HDD 3 2 1 NW 2 1
```

4.3.5 Configure BIOS Settings (/bcs)

```
syscfg /bcs [admin_password] [BIOS_Group_Name] BIOS_Setting_Name Value [BIOS_Setting_Name Value [...]]
```

admin_password	You must enter the BIOS admin password, if set, or the null string if the password is currently not set.
BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
BIOS_Group_Name	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
Value	The value for the BIOS Setting.

Set the value of individual BIOS Settings.

Refer to the *Technical Product Specification* for your Intel® Server Board for more information on BIOS Setup options.

Examples of how to configure BIOS settings:

```
syscfg /bcs "admin@123" "Quiet Boot" 0
syscfg /bcs "admin@123" "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "admin@123" "system acoustic and performance configuration" "Set throttling mode" 2
"Altitude" 900 "Set fan profile" 2
```

When the BIOS administrator is not set, use:

```
syscfg /bcs "" "Quiet Boot" 0
syscfg /bcs "" "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs "" "system acoustic and performance configuration" "Set throttling mode" 2 "Altitude" 900 "Set fan profile" 2
```

Use the `syscfg /d biossettings` command to show the possible values for the BIOS Setting. For example:

```
syscfg /d biossettings group "Main" "Quiet Boot"
```

Notes:

- The SYSCFG utility does not support configuring "BMC Configuration" under BIOS "Server Management" settings using the switches /bcs or /d biossettings.
- The SYSCFG utility on Intel® S1200V3RP Server Board product family does not support group setting.

4.3.6 BIOS Load Default Factory Settings (/bldfs)

```
syscfg /bldfs [admin_password]
```

admin_password	You must enter the BIOS admin password, if set, or the null string if the password is currently not set.
----------------	--

The /bldfs option requires a reboot to reset the default settings.

Refer to the product guide for your Intel® Server Board for more information on BIOS Setup default settings.

Load the default factory BIOS settings.

Examples:

```
syscfg /bldfs admin@123
```

When the BIOS administrator is not set, use:

```
syscfg /bldfs ""
```

4.3.7 BIOS Variable (/bvar)

syscfg /bvar [Option][admin_password]

The command provides BIOS switch to create, modify, or delete a new EFI variable of user choice. It is supported in the versions for Linux*, Windows* and UEFI platform.

Command	Description
admin_password	You must enter the BIOS admin password, if set, or the null string if the password is currently not set.
/bvar create	This command creates a new EFI variable. The parameters that "create" command takes are as follows: Name: Name of the EFI variable that to be created GUID: GUID of the EFI variables Data: Data for the variable Attributes: Attribute is optional while creating; if not provided it will take an attribute value of 7. The command will be successful when the command is executed successfully and the variable is created. However, if a variable with the same name and GUID already exists, the utility will provide an appropriate message.
/bvar overwrite	This command will overwrite the data value of an existing EFI variable. Following are the parameters passed to this command: Name: Name of the existing variable GUID: Optional. However, if the name is not unique, the utility will provide a message for providing GUID as an additional parameter. Data: Data to be overwritten
/bvar delete	This command will delete an existing EFI variable. The parameters passed are as follows: Name: Name of the variable GUID: Optional and needed if name is not unique

Notes:

- Take caution before deleting any EFI variable or rewriting the data of an existing variable. Otherwise, this may lead to the system unstable.
- The supported attributes are 3 and 7, while the attributes 0, 1, 2, 4, 5, and 6 are not supported with this switch.

Attributes	Description
3	Non-Volatile(NV) + Boot Service Access(BS)
7	Non-Volatile(NV) + Boot Service Access(BS) + Real Time(RT)

Examples:

```
syscfg /bvar "admin@123" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata
syscfg /bvar "admin@123" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata 3
syscfg /bvar "admin@123" overwrite testvar testvarnewdata
syscfg /bvar "admin@123" delete testvar
```

When the BIOS administrator is not set:

```
syscfg /bvar "" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata
```

```
syscfg /bvar "" create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata 3
syscfg /bvar "" overwrite testvar testvarnewdata
syscfg /bvar "" delete testvar
```

4.3.8 BIOS EFI Secure Boot Settings

```
syscfg /secureboot [admin_password] [enable/disable]
```

The above command will set EFI secure boot status.

Examples:

- To set EFI Secure Boot status to “disable”:

```
syscfg /secureboot "admin@123" disable
```

- To set EFI Secure Boot status to “enable”:

```
syscfg /secureboot "admin@123" enable
```

4.3.9 BIOS EFI Secure Boot Key Settings (/securebootkey)

```
syscfg /securebootkey [admin_password] overwrite [key_name] [key_data_file]
```

The above command will overwrite or append EFI Secure Boot keys. The parameters that “overwrite” command takes are as follows:

- Key_name: name of the key user want to update, such as “PK”, “KEK”, “db” and “dbx”.
- Key_data_file: file path of key data file.

Examples:

If BIOS administrator password is not set, then:

```
syscfg /securebootkey "" overwrite PK key_data_file
```

4.4 Firmware Commands

This section lists the Firmware commands.

4.4.1 Channels (/c)

```
syscfg {/c | /channel} [channel_ID { 1 {straight | MD5} | 2 {straight | MD5 } | 3 {straight | MD5 } | 4 {straight | MD5 } | 5 {enable | disable} | 6 {enable | disable} | 7 {disabled | preboot | always | shared} | 8 {user | operator | admin} | 9 {enable | disable} } ]
```

Channel_ID	BMC channel ID number.
1	Selects the authentication types for callback privilege level.
2	Selects the authentication types for user privilege level.
3	Selects the authentication types for operator privilege level.
4	Selects the authentication types for Admin privilege level.
5	Selects the Per message authentication.
6	Selects User Level Authentication enable.
7	Selects the Access Mode. Values of preboot and shared are only valid for serial channels.
8	Selects the Privilege level limit for the channel.
9	Selects Enable PEF on the specified channel.
straight MD5	Authentication method for callback, user, operator, and admin privilege levels. You can enable

	multiple authentication methods by separating the possible values with the plus sign.
disabled preboot always shared	Access Mode. Values of preboot and shared are only valid for serial channels.
user operator admin	Privilege Level.
enable disable	Enable or Disable Per Message Authentication, User Level Authentication, and PEF.

Configure the BMC channels. Use this command to change a single parameter (selected by the number 1-9).

Examples:

```
syscfg /c
syscfg /c 1 1 straight+MD5
syscfg /c 1 7 always /c 1 8 admin
```

Notes: The SYSCFG utility on Intel® S1200V3RP Server Board product family does not support serial channels configuration.

4.4.2 Clear SEL (/csel)

syscfg {/csel | /clearSEL}

Clear the System Event Log (SEL).

```
syscfg /csel
syscfg /clearSEL
```

4.4.3 Date and Time (/dt)

syscfg {/dt | /timeofday} [admin_password] hh:mm:ss mm/dd/yyyy

admin_password	You must enter the BIOS admin password, if set, or the null string if the password is currently not set.
hh:mm:ss	Hours (24 hour clock), minutes, and seconds.
mm/dd/yyyy	Month, day, and year.

Examples of how to set the time of day stored in the Real Time Clock (RTC) by the BIOS.

```
syscfg /dt "admin@123" 18:45:00 08/15/2011
```

When BIOS administrator is not set:

```
syscfg /dt "" 18:45:00 08/15/2011
```

4.4.4 Email Alert Configure (/eac)

syscfg {/eac | /emailalertconf} SMTP_Configuration_Index {0|1 | 2 | 3|4|5|6|7} ASCII_String Channel number

SMTP_Configuration_Index	1-n. An index into the SMTP configuration table in firmware. The maximum number n depends on the firmware on your server board (refer to your server documentation for details).
{0 1 2 3 4 5 6 7}	0 = SMTP Enable/Disable 1 = From Address 2 = To Address

	3 = Subject 4 = SMTP User Name 5 = User Password (Only Set, no Get) 6 = Server Address 7 = Message Content
ASCII_String	This is the value for the selected parameter. Use double quotes (") to enclose strings that include space characters.
Channel number	Valid LAN Channel Number.

Example of how to configure the alerting email settings:

```
syscfg /eac 1 1 server2@companyyx.com 1
```

4.4.5 Email Alert Enable (/eae)

syscfg {/eae | /emailalertenable} Sender_Name Channel_Number

Sender_Name	Sender machine name. This string identifies the managed server to the SMTP server.
Channel_Number	Valid LAN channel number.

Example of how to set the sender machine name for SMTP email alerts from the current server.

```
syscfg /eae dupont01 3
```

4.4.6 Help (/h)

Display help on the system configuration utility.

syscfg {/h | /?} {lan | user | pef | sol | power | channel | system | fwadvfcfg | bios}

lan | user | pef | sol | power | channel | system | fwadvfcfg | bios Displays help in the specified area.

Examples of how to get help of LAN and POWER configuration:

```
syscfg /h lan
syscfg /? power
```

Notes:

- The SYSCFG utility on Intel® S1200V3RP Server Board product family does not support "sol" option.
- In Linux*, to use the /? option, you must enclose it in double quotes.

4.4.7 LAN Alert Configuration (/lac)

Configure the LAN Alert destinations for a channel.

syscfg {/lac | /lanalertconf} Channel_Id Alert_Destination_Index Alert_Destination_IP_Address {Alert_ID_MAC_Address | "resolve"} {enable | disable} {enable | disable} {1..7} {1..255} {SNMP | SMTP}

Channel_ID	IPMI Channel number.
Alert_Destination_Index	Index into the Alert Destination table.
Alert_Destination_IP_Address	IP address of the alert destination in the dot separated decimal value format: n.n.n.n, where n is a number between 0 and 255.
Alert_ID_MAC_Address	MAC address of the alert destination in the hexadecimal format separated by hyphens: hh-

	hh-hh-hh-hh-hh, where h is a hexadecimal value from 0 to F., or “resolve” to automatically resolve the MAC Address.
enable disable	Backup Gateway state.
enable disable	Alert Acknowledge state.
1..7	Retry count.
1..255	Retry interval in seconds.
SNMP SMTP	Alert destination type: SNMP (Simple Network Management Protocol) or SMTP (Simple Mail Transport Protocol). The default is SNMP.

See *IPMI 2.0 Specification* for more information.

Example:

```
syscfg /lac 1 1 10.78.211.40 03-FE-02-41-F3 disable disable 0 1 SNMP
```

4.4.8 LAN Alert Enable (/lae)

Enable LAN alerting on the specified channel.

```
syscfg {/lae | /lanalertenable} Channel_ID Gateway_IP_Address {Gateway_MAC_Address | “resolve”}
SNMP_Community_String [Backup_Gateway_IP_Address {Backup_Gateway_MAC_Address | “resolve”}
```

Channel_ID	IPMI Channel ID.
Gateway_IP_Address	Gateway IP Address for the specified LAN channel.
Gateway_MAC_Address	Gateway MAC Address for the specified LAN channel or “resolve” to automatically resolve the MAC Address.
SNMP_Community_String	Enter the SNMP community string, or the null string (“”).
Backup_Gateway_IP_Address	Gateway IP Address for the specified LAN channel.
Backup_Gateway_MAC_Address	Gateway MAC Address for the specified LAN channel or “resolve”.

Notes:

- The Gateway_MAC_Address and Backup_Gateway_MAC_Address may optionally be set to “resolve”. If set to “resolve”, SYSCFG will attempt to resolve the MAC address before writing any values to firmware. If the MAC Address resolution fails, SYSCFG quits, without writing, and prints an error message.
- The “resolve” option is not supported across different subnets. Also, use of resolve command is not encouraged.

See *IPMI 2.0 Specification* for more information.

Examples:

```
syscfg /lae 2 10.110.40.3 03-FE-02-41-F3 public
syscfg /lae 2 10.110.40.3 03-fe-02-41-f3 "" 10.110.40.4 0f-7e-42-4a-33
```

4.4.9 LAN Configuration (/lc)

Configure the LAN settings on a specific channel. This option is similar to /lac, but it is used to only configure one parameter at a time. Select the parameter by choosing one of the parameter number listed above (2a, 2b, ..., 16) followed by a value.

```
syscfg {/lc | /lanconf} Channel_ID {2a {straight | MD5} | 2b {straight | MD5} | 2c {straight | MD5} | 2d
{straight | MD5} | 3 IP_Address | 4 {static | DHCP} | 6 IP_Address | 12 IP_Address | 13 MAC_Address | 14
IP_Address | 15 MAC_Address | 16 SNMP_Community_String }
```

Channel_ID	IPMI Channel ID (LAN channel).
2a	Selects authentication type for callback privilege level. Multiple privilege levels may be specified by

Channel_ID	IPMI Channel ID (LAN channel).
	using the plus sign (see examples below).
2b	Selects authentication type for user privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
2c	Selects authentication type for operator privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
2d	Selects authentication type for administrator privilege level. Multiple privilege levels may be specified by using the plus sign (see examples below).
3	Selects IP Address for the specified LAN channel. (This is not a valid option when the source is set to DHCP.)
4	Selects source for IP Address
6	Selects subnet mask. (This is not a valid option when the source is set to DHCP.)
12	Selects Gateway IP Address. (This is not a valid option when the source is set to DHCP.)
13	Selects Gateway MAC Address.
14	Selects Backup Gateway IP Address.
15	Selects Backup Gateway MAC Address.
16	Selects Community String.
C7	Up to a 64-byte ASCII string (printable characters in the range 0x21 to 0x7e) DHCP Host Name String.
102	IPV6 Enable. Use Enable or Disable to Enable/Disable "IPV6 Enable" parameter.
103	Selects source for IPV6 IP Address. Values to be used are STATIC, DHCPV6, and AUTO.
104	Selects IPV6 IP Address for the specified LAN channel. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) Format is xxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx
105	Selects the IPV6 Prefix Length. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) Prefix length should be from 0 to 128 as per IPv6 spec.
106	Selects the IPV6 Default Gateway IP. (This is not a valid option when the IPV6 IP source is set to DHCPV6 or AUTO.) Format is xxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx.xxxx

See *IPMI 2.0 Specification* for more information

Notes:

- The Host IP, Subnet Mask, and Default Gateway IP cannot be set when DHCP is enabled for the LAN channel.
- The Host MAC address cannot be set for any LAN channel in ESB2 BMC.
- The DHCP Host Name is common for all LAN Channels.
- The set DHCP Host name will be used on the next DHCP lease renewal or at the current lease expiration.

Examples:

```
syscfg /lc 1 2b straight+md5
```

```
syscfg /lc 1 C7 TestDHCPHostName
```

```
syscfg /lc 1 102 ENABLE
```

```
syscfg /lc 1 103 AUTO
```

4.4.10 LAN Enable (/le)

Configure the LAN channel used by the BMC on the specified channel.

syscfg {/le | /lanenable} Channel_ID {dhcp | {static IP_Address Subnet_Mask}}

Channel_ID	BMC LAN Channel ID
------------	--------------------

static dhcp	IP Address source
<i>IP_Address</i>	IP Address
<i>Subnet_Mask</i>	Subnet mask

See *IPMI 2.0 Specification* for more information.

Examples:

```
syscfg /le 1 dhcp
syscfg /le 1 static 10.30.240.21 255.255.255.0
```

4.4.11 LAN Failover Mode (/lfo)

BMC FW provides a LAN failover capability so that the failure of the system HW associated with one LAN link will result in traffic being rerouted to an alternate link.

syscfg {/lfo | /lanfailover} {enable | disable}

ENABLE ENABLE	Enable or Disable LAN Failover
------------------------	--------------------------------

4.4.12 PEF Configure (/pefc)

Globally enable or disable the Platform Event Filters used by the BMC.

syscfg {/pefc | /pefconfig} {enable | disable} {none | alert | pdown | reset | pcycle | diagint}

enable disable	Global PEF enable.
none alert pdown reset pcycle diagint	PEF Action. Enable multiple actions by using a plus sign (+) to concatenate the values. None may not be combined with other options. “pdown” means power down. “pcycle” means power cycle. “diagint” means diagnostic interrupt.

See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example:

```
syscfg /pefc enable alert+pdown+reset+pcycle
```

Note: The SYSCFG utility on Intel® S1200V3RP Server Board product family does not support “diagint” option.

4.4.13 PEF Filter (/peff)

Configure the Platform Event Filters used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

syscfg {{/peff | /peffilter} *Filter_table_index* {enable | disable} {none | alert | pdown | reset | pcycle | diagint} {1..15}}

<i>Filter_table_index</i>	Index into the PEF filter table for a particular filter.
enable disable	Enable specified filter.
none alert pdown reset pcycle	PEF Action. Enable multiple actions by using a plus sign to concatenate

	the values. None may not be combined with other options. “pdown” means power down. “pcycle” means power cycle.
1..15	Policy number. This number maps to the Alert Policy Table. (See also /pefp option.)

Example:

```
syscfg /peff 3 enable pdown 1 /peff 4 enable pdown 1
```

4.4.14 PEF Policy (/pefp)

Configure the Platform Event Filter policy table used by the BMC on the specified channel.

syscfg {/pefp | /pefpolicy} Policy_table_index {enable | disable} {1..15} {ALWAYS | NEXT_E | STOP | NEXT_C | NEXT_T} Channel_ID Destination_table_index

<i>Policy_table_index</i>	Policy Table Index
enable disable	Enable policy
1..15	Policy number
ALWAYS NEXT_E STOP NEXT_C NEXT_T	Alert Policy: ALWAYS = Always send an alert to the destination indicated in the policy table entry specified by argument 1. NEXT_E = If an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number instead. STOP = If an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, and do not process any more policy table entries. NEXT_C = If an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but on a different channel. NEXT_T = If an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but with a different destination type.
<i>Channel_ID</i>	IPMI Channel ID for a BMC channel
<i>Destination_table_index</i>	Destination Table Index

See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Example:

```
syscfg /pefp 3 enable 1 always 2 3
```

4.4.15 Power Restore Policy (/prp)

Set the power restore policy.

syscfg /prp {off | on | restore}

off on restore	Power restore policy
---------------------------	----------------------

See *IPMI 2.0 Specification*, §28.8, for more information on the Set Power Restore Policy IPMI Command.

Example:

```
syscfg /prp off
```

4.4.16 Configure Power Supply Cold Redundancy Setting (/cr)

SYSCFG utility provides an option to configure Cold Redundancy settings in the server management firmware.

Commands using this option can have the following format:

syscfg {/cr | /coldredundancy} {<Argument 1> <Argument 2>}

The table below describes the arguments for this option.

Table 4. Cold Redundancy Configuration Command-line Arguments

Argument #	Possible Values	Description
1	Enable Disable	Enables/Disables Cold Redundancy feature; refer to the Example 1 below.
1 2	Rotation Enable Disable	Enables/Disables Cold Redundancy Rotation; refer to the Example 2 below.
1 2	Timeout Timeout value in number of days	Sets the timeout value for Cold Redundancy Rotation feature; refer to the Example 3 below. Valid values are between 1-180 days (6months).
1 2	Rank Rank Value	Sets the Rank Order of Power supplies; refer to the Example 4 below. When the user sets the rank order of power supplies, utility internally sets the rank type to USER_SPECIFIC. The rank order should be only for max number of power supplies supported by the system.

Example 1:

```
syscfg /cr enable
```

The example above enables the Cold Redundancy feature.

Example 2:

```
syscfg /cr rotation enable
```

The example above enables the Cold Redundancy Rotation feature.

Example 3:

```
syscfg /cr timeout 10
```

The example above sets the rotation timeout to 10 days.

Example 4:

```
syscfg /cr rank "2 1"
```

The example above sets the rank order to 2, 1.

4.4.17 Reset BMC (/rbmc)

Reset the Baseboard Management Controller.

syscfg {/rbmc | resetBMC}

Example:

```
syscfg /rbmc
```

Note: Do not issue any Syscfg commands until the BMC initializes (approx. 50sec).

4.4.18 Restore Firmware Settings (/rfs)

Restore the factory default Baseboard Management Controller settings.

syscfg {/rfs | restorefirmwaresettings}

Example:

```
syscfg /rfs
```

Note: This command should be followed only by the “Reset BMC” or “AC Power Cycle”. However, do not issue either of the commands until the BMC initializes (approx. 50sec). Unpredictable operation may occur if you do not reset the BMC after this command.

4.4.19 Reset Node Manager (/rnm)

Reset the Node Manager (NM).

syscfg {/rnm | resetnodemanager}

Node Manager (NM) provides a mechanism for the customer to configure multiple power policies on a platform. These policies can have a defined action to “shut down” the platform. If the customer configures a power policy that performs a “shutdown” and the power threshold is set too low, the platform will not boot to the operating system if it is ACPI aware. A utility that runs in the EFI environment (which is not ACPI aware) allows for an in-band recovery mechanism.

Example:

```
syscfg /rnm or syscfg /resetnodemanager
```

4.4.20 Serial Over LAN (/sole)

Enable Serial Over LAN (SOL) on the specified LAN channel. See *IPMI 2.0 Specification*, Chapter 26, for more information on IPMI SOL commands.

syscfg {/sole | /soleenable} Channel_ID {enable | disable} {user | operator | admin} {9600 | 19200 | 38400 | 115200} {0..7} {0..2550}

Channel_ID	IPMI Channel ID
enable disable	SOL enable
user operator admin	Privilege Level Limit
9600 19200 38400 115200	Baud Rate
0..7	Retry count
0..2550	Retry interval in milliseconds, rounded to the nearest 10 ms

Serial Baud Rate is not supported.

Example:

```
syscfg /sole 1 Enable Operator 6 200
```


4.4.21 Save BMC debug log

SYSCFG utility provides an option to save BMC debug log to a ZIP file for system diagnostics purpose.

syscfg {/sbmcdl | /savebmcdebuglog} [Public] [filename]

Public	Regular System Diagnostics
Filename	Name of the file to save the BMC diagnostics data. The extension should be .zip or .ZIP.

4.4.22 Save BMC SOL log

SYSCFG utility provides an option to save BMC SOL log to a ZIP file for dumping system serial output.

syscfg {/bmcsol} [filename]

Possible Values	Description
File name	Name of the file to save the BMC SOL data, the extension should be .zip or .ZIP

Note:

- This feature is only supported on Intel® Server Board S1200SP series.

4.4.23 Users (/u)

Set the user name and password for the specified BMC user.

syscfg {/u | /user} User_ID User_name Password

User_ID	User ID. Use a decimal integer in the range [1..n]; the maximum value for n is 5. That is, only five users are supported irrespective of the platforms. User ID 1 is usually the anonymous user.
User_name	BMC User name consisting of up to 16 ASCII characters in the range 0x21 to 0x7e, except "[" and "]". Use "" to leave user name as anonymous.
Password	User BMC Password. ASCII string of up to 20 characters.

See *IPMI 2.0 Specification* for more information on user passwords.

Notes:

- The user names for User 1 (NULL) and User 2 (Root) cannot be changed.
- Duplicate user names are not supported.

Examples:

```
syscfg /u 3 BobT gofps
syscfg /u 2 "" ""
```

4.4.24 User Enable (/ue)

Enable or disable the BMC user on the specified BMC channel.

syscfg {/ue | /userenable} User_ID {enable | disable} Channel_ID

User_ID	User ID. Use a decimal integer in the range [1..n], where n is the number of users supported by the platform BMC. User ID 1 is usually the anonymous user.
enable disable	Enable or disable the specified user
Channel_ID	IPMI Channel ID

See *IPMI 2.0 Specification* for more information on user configuration settings.

Example:

```
syscfg /ue 3 enable 1
```

4.4.25 User Privilege (/up)

Enable or disable the BMC user on the specified BMC channel.

syscfg {/up | /userprivilege} *User_ID Channel_ID* {callback | user | operator | admin | none} [SOL | Disable]

User_ID	BMC user ID.
Channel_ID	BMC channel number.
callback user operator admin none	IPMI privilege level.
SOL Disable	Specifies the type of payload: Serial Over LAN, or Disable.

See *IPMI 2.0 Specification* for more information on user privilege levels.

Notes:

- User 2 (Root) privileges cannot be changed.
- Privilege level none is not supported.
- Maximum five users are supported by the utility irrespective of number of users supported in the FW.

Examples:

```
syscfg /up 1 1 admin
syscfg /up 1 1 admin sol
```

4.4.26 Shutdown Policy Interface (/sdp)

This command is used to configure shutdown policy in the server management firmware.

syscfg /sdp {enable | disable}

Examples:

The example below enables shutdown policy so the server will shut down on a power supply Over Current (OC) or a power supply Over Temperature (OT) event.

```
syscfg /sdp enable
```

Appendix A. IPMI Channel Assignments

The following table lists the IPMI Channel assignments.

Table 5. IPMI Channel assignments

IPMI Channel ID	Assignments
Channel 1	Baseboard LAN Channel
Channel 2	Baseboard LAN Channel
Channel 3	Optional Intel® RMM4 NIC

Appendix B. Saved Firmware Settings

This section describes firmware settings that are saved and restored with SYSCFG in binary and INI formats.

Binary Format

The following table lists the firmware settings that are saved and restored with SYSCFG in binary formats.

Table 6. Saved Firmware Settings

Component	Setting
Power Configuration Settings	Power Restore Policy
LAN Channel Settings	Alert Enable
	Per Message Authentication
	User Level Authentication Enable
	Access Mode
	Privilege Level Limit
	Community String
	Gratuitous ARP enable
	ARP interval
	Authentication Types
	DHCP enabled
	DHCP Host Name
	Subnet Mask
	Gateway IP
	Gateway MAC
	Backup Gateway IP
	Backup Gateway MAC
BMC ARP Response Enable	
Note:	
<i>Save and Restore of Host IP, Subnet Mask, Default Gateway IP, and Backup Gateway IP is not supported.</i>	
LAN Alert Settings [†]	Alert Acknowledge Enabled
	Alert IP
	Alert MAC
	Gateway Selector
	Retry Count
	Retry Interval
User Settings	User Name
	User Password
	Privilege Level Limit
	Callback Status
	Link Authentication Enable
	IPMI messaging enabled
Platform Event Filter Settings [†]	User Payload
	PEF Enable
	Event Message for PEF Action
	Startup Delay
	Alert Startup Delay
	Global Control Actions
	Event Filters

Component	Setting
	Alert Policies
Serial Over LAN Settings	SOL Enable
	SOL Privilege Level
	SOL Retry Count
	SOL Retry Interval
	SOL Baud Rate*
	SOL Authentication Enable
SMTP Alert Settings	Enable/Disable SMTP
	Sender Machine Name
	From Address
	To Address
	Subject Line
	User Name
	User Password
	Server Address
	Message Content
	LAN Alert Destination/SNMP Alert Index Mapping

Note: SOL Baud Rate is not supported.

Sample <filename>.INI File

The following is for reference purposes only. The content and settings of the .INI file for different server systems may differ from those shown below.

Instructions for editing INI file:

- Section Header – must not be edited – could lead unpredictable behavior.
- Un-editable fields have specific instructions.
- Options for the fields are clearly called out – no other options allowed.
- Not all IPMI/BIOS settings under a section will be available – only those that are required for the user to configure.
- The section headers are generated automatically depending on the platform and a few sections and fields may not be available depending on the platform firmware and BIOS.

```
; Warning!!! Warning!!! Warning!!!
```

```
; -----
```

```
; This file has been generated in a system with the BIOS/Firmware
; specifications as mentioned under [SYSTEM] section. Please do not
; modify or edit any information in this section. Attempt to restore
; these information in incompatible systems could cause serious
; problems to the systems and could lead the system non-functional.
; Note: The file is best seen using wordpad.
```

```
[SYSTEM]
```

```
BIOSVersion=SE5C600.86B.99.99.x032.072520111118 ; This field should not be edited
FWBootVersion=4 ; This field should not be edited
FWOpcodeVersion=21 ; This field should not be edited
PIAVersion=6 ; This field should not be edited
```

[POWER]

PowerRestorePolicy=ON ; Options: On, Off or Restore

[USERS]

NumberOfUsers=5 ; This field should not be edited

[USERS::USER1]

UserName= ; This field should not be edited
GlobalUserStatus=DISABLE ; Options: Enable or Disable
PrivilegeCh1=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or Disable
SOLEnableCh1=ENABLE ; Options: Enable or Disable
PrivilegeCh2=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or Disable
SOLEnableCh2=ENABLE ; Options: Enable or Disable
PrivilegeCh3=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or Disable
SOLEnableCh3=ENABLE ; Options: Enable or Disable

[USERS::USER2]

UserName=root ; This field should not be edited
GlobalUserStatus=DISABLE ; Options: Enable or Disable
PrivilegeCh1=ADMIN ; This field should not be edited
UserAccessCh1=ENABLE ; This field should not be edited
SOLEnableCh1=ENABLE ; This field should not be edited
PrivilegeCh2=ADMIN ; This field should not be edited
UserAccessCh2=ENABLE ; This field should not be edited
SOLEnableCh2=ENABLE ; This field should not be edited
PrivilegeCh3=ADMIN ; This field should not be edited
UserAccessCh3=ENABLE ; This field should not be edited
SOLEnableCh3=ENABLE ; This field should not be edited

[USERS::USER3]

UserName=test1 ; ASCII printable characters in the range of 0x21 to 0x7E. Max
length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or Disable
PrivilegeCh1=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or Disable
SOLEnableCh1=ENABLE ; Options: Enable or Disable
PrivilegeCh2=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or Disable
SOLEnableCh2=ENABLE ; Options: Enable or Disable
PrivilegeCh3=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or Disable
SOLEnableCh3=ENABLE ; Options: Enable or Disable

[USERS::USER4]

UserName=test2 ; ASCII printable characters in the range of 0x21 to 0x7E. Max
length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or Disable

PrivilegeCh1=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or Disable
SOLEnableCh1=ENABLE ; Options: Enable or Disable
PrivilegeCh2=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or Disable
SOLEnableCh2=ENABLE ; Options: Enable or Disable
PrivilegeCh3=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or Disable
SOLEnableCh3=ENABLE ; Options: Enable or Disable

[USERS::USER5]

UserName=test3 ; ASCII printable characters in the range of 0x21 to 0x7E. Max
length 16 bytes
GlobalUserStatus=DISABLE ; Options: Enable or Disable
PrivilegeCh1=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh1=DISABLE ; Options: Enable or Disable
SOLEnableCh1=ENABLE ; Options: Enable or Disable
PrivilegeCh2=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh2=DISABLE ; Options: Enable or Disable
SOLEnableCh2=ENABLE ; Options: Enable or Disable
PrivilegeCh3=ADMIN ; Options: User, Operator, Admin, NoAccess
UserAccessCh3=DISABLE ; Options: Enable or Disable
SOLEnableCh3=ENABLE ; Options: Enable or Disable

[PEF]

PEFEnable=ENABLE ; Options: Enable, Disable

[PEF::FILTERS]

Filter1=DISABLE ; Options: Enable, Disable
Filter2=DISABLE ; Options: Enable, Disable
Filter3=DISABLE ; Options: Enable, Disable
Filter4=DISABLE ; Options: Enable, Disable
Filter5=DISABLE ; Options: Enable, Disable
Filter6=DISABLE ; Options: Enable, Disable
Filter7=DISABLE ; Options: Enable, Disable
Filter8=DISABLE ; Options: Enable, Disable
Filter9=DISABLE ; Options: Enable, Disable
Filter10=DISABLE ; Options: Enable, Disable
Filter11=DISABLE ; Options: Enable, Disable
Filter12=DISABLE ; Options: Enable, Disable

[LANCHANNELS]

NumberOfLANChannels=3 ; This field should not be edited
DHCPHostName=DCMI001E670DD158 ; ASCII printable characters in the range of 0x21 to
0x7E. Max length 64 bytes
LANFailOver=DISABLE ; Options: Enable or Disable

[CHANNEL::LAN1]

AlertEnable=ENABLE ; Options: Enable, Disable
PerMessageAuthentication=ENABLE ; Options: Enable, Disable

UserLevelAuthentication=ENABLE ; Options: Enable, Disable
AccessMode=ALWAYS ; Options:Disable, Always, shared
PrivilegeLevelLimit=ADMIN ; Options: User, Operator, Admin
CommunityString=public ; Upto 16 bytes, no space allowed
ARPEnable=DISABLE ; Options: Enable, Disable
ARPResponse=ENABLE ; Options: Enable, Disable
ARPInterval=0 ; Decimal value between 0 & 255. This values is in milliseconds. Input value rounded down to the nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not be edited
SubnetMask=0.0.0.0 ; This field should not be edited
GatewayIP=0.0.0.0 ; This field should not be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not be edited
BackupGatewayIP=0.0.0.0 ; This field should not be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not be edited
IPV6Status=DISABLE ; Options: Enable or Disable
AlertIPO=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form

[CHANNEL::LAN2]

AlertEnable=ENABLE ; Options: Enable, Disable
PerMessageAuthentication=ENABLE ; Options: Enable, Disable
UserLevelAuthentication=ENABLE ; Options: Enable, Disable
AccessMode=ALWAYS ; Options:Disable, Always, shared
PrivilegeLevelLimit=ADMIN ; Options: User, Operator, Admin
CommunityString=public ; Upto 16 bytes, no space allowed
ARPEnable=DISABLE ; Options: Enable, Disable
ARPResponse=ENABLE ; Options: Enable, Disable
ARPInterval=0 ; Decimal value between 0 & 255. This values is in milliseconds. Input value rounded down to the nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not be edited
SubnetMask=0.0.0.0 ; This field should not be edited
GatewayIP=0.0.0.0 ; This field should not be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not be edited
BackupGatewayIP=0.0.0.0 ; This field should not be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not be edited
IPV6Status=DISABLE ; Options: Enable or Disable
AlertIPO=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form

[CHANNEL::LAN3]

AlertEnable=ENABLE ; Options: Enable, Disable
PerMessageAuthentication=ENABLE ; Options: Enable, Disable
UserLevelAuthentication=ENABLE ; Options: Enable, Disable
AccessMode=ALWAYS ; Options:Disable, Always, shared

PrivilegeLevelLimit=ADMIN ; Options: User, Operator, Admin
CommunityString=public ; Upto 16 bytes, no space allowed
ARPEnable=DISABLE ; Options: Enable, Disable
ARPResponse=ENABLE ; Options: Enable, Disable
ARPInterval=0 ; Decimal value between 0 & 255. This values is in milliseconds. Input value rounded down to the nearest 500ms value
DHCPEnable=DISABLE ; Options: Enable or Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0 ; This field should not be edited
SubnetMask=0.0.0.0 ; This field should not be edited
GatewayIP=0.0.0.0 ; This field should not be edited
GatewayMAC=00-00-00-00-00-00 ; This field should not be edited
BackupGatewayIP=0.0.0.0 ; This field should not be edited
BackupGatewayMAC=00-00-00-00-00-00 ; This field should not be edited
IPV6Status=DISABLE ; Options: Enable or Disable
AlertIPO=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC0=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form
AlertIP1=0.0.0.0 ; In xxx.xxx.xxx.xxx form
AlertMAC1=00-00-00-00-00-00 ; In xx-xx-xx-xx-xx-xx form

[CHANNEL::LAN1::SOL]

SOLEnable=ENABLE ; Options: Enable, Disable
PrivilegeLevelLimit=USER ; Options: Admin, User, Operator
SolNumberOfRetries=7 ; Decimal value in the range 0-7
SolRetryInterval=500 ; Decimal value in the range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200, 38400, 57600, 115200. Refer respective platform FW specifications for the supported Baudrates

[CHANNEL::LAN2::SOL]

SOLEnable=ENABLE ; Options: Enable, Disable
PrivilegeLevelLimit=USER ; Options: Admin, User, Operator
SolNumberOfRetries=7 ; Decimal value in the range 0-7
SolRetryInterval=500 ; Decimal value in the range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200, 38400, 57600, 115200. Refer respective platform FW specifications for the supported Baudrates

[CHANNEL::LAN3::SOL]

SOLEnable=ENABLE ; Options: Enable, Disable
PrivilegeLevelLimit=USER ; Options: Admin, User, Operator
SolNumberOfRetries=7 ; Decimal value in the range 0-7
SolRetryInterval=500 ; Decimal value in the range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400 ; Options: 9600, 19200, 38400, 57600, 115200. Refer respective platform FW specifications for the supported Baudrates

[EMAILCONFIG]

NumberOfEmailConfig=45 ; This field should not be edited

[EMAILCONFIG::CHANNEL1::INFO]

SenderName= ; ASCII printable character max upto 32 bytes
FromAddress= ; ASCII printable character max upto 32 bytes
ToAddress= ; ASCII printable character max upto 64 bytes
Subject= ; ASCII printable character max upto 32 bytes
SMTPUserName= ; ASCII printable character max upto 16 bytes
Message= ; ASCII printable character max upto 64 bytes
ServerAddress=0.0.0.0 ; In xxx.xxx.xxx.xxx form

[EMAILCONFIG::CHANNEL2::INFO]

SenderName= ; ASCII printable character max upto 32 bytes
FromAddress= ; ASCII printable character max upto 32 bytes
ToAddress= ; ASCII printable character max upto 64 bytes
Subject= ; ASCII printable character max upto 32 bytes
SMTPUserName= ; ASCII printable character max upto 16 bytes
Message= ; ASCII printable character max upto 64 bytes
ServerAddress=0.0.0.0 ; In xxx.xxx.xxx.xxx form

[EMAILCONFIG::CHANNEL3::INFO]

SenderName= ; ASCII printable character max upto 32 bytes
FromAddress= ; ASCII printable character max upto 32 bytes
ToAddress= ; ASCII printable character max upto 64 bytes
Subject= ; ASCII printable character max upto 32 bytes
SMTPUserName= ; ASCII printable character max upto 16 bytes
Message= ; ASCII printable character max upto 64 bytes
ServerAddress=0.0.0.0 ; In xxx.xxx.xxx.xxx form

[BIOS]

[BIOS::Main]

Quiet Boot=1 ;Options: 0=Disabled: 1=Enabled
POST Error Pause=0 ;Options: 0=Disabled: 1=Enabled

[BIOS::Processor Configuration]

Intel(R) Turbo Boost Technology=1 ;Options: 0=Disabled: 1=Enabled
Enhanced Intel SpeedStep(R) Tech=1 ;Options: 0=Disabled: 1=Enabled
Processor C3=0 ;Options: 0=Disabled: 1=Enabled
Processor C6=1 ;Options: 0=Disabled: 1=Enabled
Intel(R) Hyper-Threading Tech=1 ;Options: 0=Disabled: 1=Enabled
Active Processor Cores[1]=0 ;Options: 1=1: 2=2: 3=3: 4=4: 5=5: 6=6: 7=7: 0=All
Execute Disable Bit=1 ;Options: 0=Disabled: 1=Enabled
Intel(R) Virtualization Technology=0 ;Options: 0=Disabled: 1=Enabled
Intel(R) VT for Directed I/O=0 ;Options: 0=Disabled: 1=Enabled
MLC Streamer=0 ;Options: 1=Disabled: 0=Enabled
MLC Spatial Prefetcher=0 ;Options: 1=Disabled: 0=Enabled
DCU Data Prefetcher=0 ;Options: 1=Disabled: 0=Enabled
DCU Instruction Prefetcher=0 ;Options: 1=Disabled: 0=Enabled
Direct Cache Access (DCA)=1 ;Options: 0=Disabled: 1=Enabled
Software Error Recover=0 ;Options: 0=Disabled: 1=Enabled

[BIOS::Memory Configuration]

Memory Operating Speed Selection=0 ;Options: 2=1067: 3=1333: 1=800: 0=Auto
 Phase Shedding=1 ;Options: 1=Auto: 0=Disabled: 1=Enabled
 Multi-Threaded MRC=1 ;Options: 0=Disabled: 1=Enabled
 Memory Type=2 ;Options: 0=RDIMMs only: 2=UDIMMs and RDIMMs: 1=UDIMMs only
 MPST Support=0 ;Options: 0=Disabled: 1=Enabled
 PCCT Support=0 ;Options: 0=Disabled: 1=Enabled
 ECC Support=1 ;Options: 0=Disabled: 1=Enabled
 Rank Multiplication=0 ;Options: 0=Auto: 1=Enabled
 LRDIMM Module Delay=1 ;Options: 0=Auto: 1=Disabled
 MemTest=1 ;Options: 0=Disabled: 1=Enabled
 SW MemTest=0 ;Options: 0=Disabled: 1=Enabled
 MemTest On Fast Boot=0 ;Options: 0=Disabled: 1=Enabled
 Attempt Fast Boot=0 ;Options: 0=Disabled: 1=Enabled
 Scrambling Seed High=54165 ;Options: 65535=Max: 0=Min: 0=Step
 Battery Back Ch 2=0 ;Options: 0=Disabled: 1=Enabled
 Battery Back Ch 3=1 ;Options: 0=Disabled: 1=Enabled
 Check PCH_PM_STS=0 ;Options: 0=Disabled: 1=Enabled
 Check PlatformDetectADR=1 ;Options: 0=Disabled: 1=Enabled
 Patrol Scrub=1 ;Options: 0=Disabled: 1=Enabled
 Demand Scrub=1 ;Options: 0=Disabled: 1=Enabled
 Correctable Error Threshold[1]=10 ;Options: 10=10: 20=20: 5=5
 Correctable Error Threshold[2]=10 ;Options: 10=10: 20=20: 5=5: 1=ALL: 0=None

[BIOS::Memory RAS and Performance Configuration]

[BIOS::Mass Storage Controller Configuration]

[BIOS::PCI Configuration]

Maximize Memory below 4GB=0 ;Options: 0=Disabled: 1=Enabled
 Memory Mapped I/O above 4GB=0 ;Options: 0=Disabled: 1=Enabled
 Onboard Video=1 ;Options: 0=Disabled: 1=Enabled
 Dual Monitor Video=0 ;Options: 0=Disabled: 1=Enabled
 Primary Display=1 ;Options: 3=Auto: 0=IGFX: 2=PCI Bus: 1=PEG

[BIOS::Serial Port Configuration]

Serial A Enable=1 ;Options: 0=Disabled: 1=Enabled
 Address=1 ;Options: 4=2E8h: 2=2F8h: 3=3E8h: 1=3F8h
 IRQ=0 ;Options: 4=3: 0=4
 Serial B Enable=1 ;Options: 0=Disabled: 1=Enabled
 Address=2 ;Options: 4=2E8h: 2=2F8h: 3=3E8h: 1=3F8h
 IRQ=4 ;Options: 4=3: 0=4

[BIOS::USB Configuration]

USB Controller=1 ;Options: 0=Disabled: 1=Enabled
 Legacy USB Support=0 ;Options: 2=Auto: 1=Disable
 d: 0=Enabled
 Port 60/64 Emulation=1 ;Options: 0=Disabled: 1=Enabled
 Make USB Devices Non-Bootable=0 ;Options: 0=Disabled: 1=Enabled
 Device Reset timeout=1 ;Options: 0=10 sec: 1=20 sec: 2=30 sec: 3=40 sec
 HP v190w 3000=0 ;Options: 0=Auto: 4=CD-ROM: 1=Floppy: 2=Forced FDD: 3=Hard Disk

[BIOS::System Acoustic and Performance Configuration]

Set Throttling Mode=0 ;Options: 0=Auto: 6=DCLTT: 2=OLTT: 3=SCLTT
Altitude=900 ;Options: 300=300m or less: 900=301m - 900m: 1500=901m - 1500m: 3000=Higher than 1500m
Set Fan Profile=1 ;Options: 2=Acoustic: 1=Performance
Fan PWM Offset=0 ;Options: 100=Max: 0=Min: 0=Step

[BIOS::Serial Port Console Redirection]

Console Redirection[2]=1 ;Options: 0=Disabled: 1=Enabled
Console Redirection[4]=0 ;Options: 0=Disabled: 1=Enabled
Out-of-Band Mgmt Port=1 ;Options: 1=COM0: 2=COM1: 3=COM2 (Disabled): 4=COM3
(Disabled)

[BIOS::Security]

Front Panel Lockout=0 ;Options: 0=Disabled: 1=Enabled

[BIOS::Server Management]

Assert NMI on SERR=1 ;Options: 0=Disabled: 1=Enabled
Assert NMI on PERR=1 ;Options: 0=Disabled: 1=Enabled
Reset on CATERR=1 ;Options: 0=Disabled: 1=Enabled
Reset on ERR2=1 ;Options: 0=Disabled: 1=Enabled
Resume on AC Power Loss=2 ;Options: 1=Last State: 2=Power On: 0=Stay Off
Clear System Event Log=0 ;Options: 0=Disabled: 1=Enabled
FRB-2 Enable=1 ;Options: 0=Disabled: 1=Enabled
OS Boot Watchdog Timer=0 ;Options: 0=Disabled: 1=Enabled
Plug & Play BMC Detection=0 ;Options: 0=Disabled: 1=Enabled
EuP LOT6 Off-Mode=0 ;Options: 0=Disabled: 1=Enabled

[BIOS::Console Redirection]

Console Redirection[1]=0 ;Options: 0=Disabled: 1=Serial Port A: 2=Serial Port B
Console Redirection[3]=0 ;Options: 0=Disabled: 1=Serial Port A
Console Redirection[4]=0 ;Options: 0=Disabled: 1=Serial Port A
Console Redirection[5]=0 ;Options: 0=Disabled: 2=Serial Port B

[BIOS::BootOrder]

Hard Drive=1
Network Card=2
Internal EFI Shell=3